

WHAT IS CLAIMED IS:

1. A self-expanding data package comprising:

basic table data having one or more table rows;

a set of one or more constant lists having one or more values; and

one or more row validation calculations;

wherein use of the set of constant lists and row validation calculations provides a mechanism for compact data storage, wherein the self-expanding data package may be expanded such that:

for each constant list of values, every list member is combined with all other

10 basic table rows and additional list members to produce every possible combination into an expanded table having expanded table rows; and

the row validation calculations are applied to test validity of the expanded table rows, and only those expanded table rows that are valid are maintained in the expanded table.

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2. The self-expanding data package of claim 1 further comprising a

calculation utilized to perform a precursor conditional test that is used in one or more row validation calculations.

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3. The self-expanding data package of claim 1 further comprising a

calculation utilized to provide additional data used in the expanded table

4. The self-expanding data package of claim 1 wherein the self-expanding

data package comprises product data for use in a computer-aided design application.

5. The self-expanding data package of claim 1 wherein the one or more of the row validation calculations provide for eliminating duplicate expanded table rows.

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6. The self-expanding data package of claim 1 wherein the basic table data, set of one or more constant lists, and one or more row validation calculations are specified using extensible markup language (XML).

10 7. The self-expanding data package of claim 1 wherein the row validation calculations are selected through a graphical user interface.

8. The self-expanding data package of claim 1 wherein the self-expanding data package is transmitted across a network.

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9. The self-expanding data package of claim 1 wherein one or more row validation calculations comprise one or more filters that limit results displayed from the expanded table rows.

20 10. The self-expanding data package of claim 1 wherein an editor provides an ability to directly edit the self-expanding data package.

11. The self-expanding data package of claim 1 wherein logic for expanding

the data package into the expanded table is fully defined within the data package and the data.

12. A method for generating data in a self-expanding data package in a computer system comprising:

5 generating, in the self-expanding data package, one or more values in a set of one or more constant lists;

generating, in the self-expanding data package, one or more calculations that operate on one or more values in the set of one or more constant lists;

wherein the self-expanding data package can be expanded, into an expanded 10 table having expanded table rows, by combining every value in each constant list with any combination of values from remaining parameters and performing the one or more calculations on the one or more values.

13. The method of claim 12 further comprising, generating, in the self-expanding data package one or more basic table data having one or more table rows, wherein the self-expanding data package can be further expanded by combining every 15 value in each constant list with each basic table row.

14. The method of claim 12, wherein one or more calculations can be applied to test validity of the expanded table rows, and only those expanded table rows 20 that are valid are maintained in the expanded table.

15. The method of claim 14, wherein one or more calculations can be

utilized to perform a precursor conditional test that is used to test validity of the expanded table rows.

16. The method of claim 12, wherein one or more calculations can be
5 utilized to provide additional data used in the expanded table

17. The method of claim 12, wherein the self-expanding data package comprises product data for use in a computer-aided design application.

10 18. The method of claim 12, wherein one or more calculations provide for eliminating duplicate expanded table rows.

19. The method of claim 12, wherein the self-expanding data package is written in extensible markup language (XML).

15 20. The method of claim 12, wherein one or more calculations are selected through a graphical user interface.

21. The method of claim 12, wherein the self-expanding data package is
20 transmitted across a network.

22. The method of claim 12, wherein one or more calculations comprise one or more filters that limit results displayed from the expanded table rows.

23. The method of claim 12, wherein an editor provides an ability to directly edit the self-expanding data package.

5 24. The method of claim 12, wherein logic for expanding the data package into the expanded table is fully defined within the data package and the data.

25. A method for utilizing data in a self-expanding data package in a computer system comprising:

10 receiving a self-expanding data package comprising one or more values in a set of one or more constant lists and one or more calculations that operate on one or more values in the set of one or more constant lists;

expanding the self-expanding data package into an expanded table having expanded table rows, by combining every value in each constant list with any combination of values from remaining parameters and performing the one or more calculations on the one or more values.

15 26. The method of claim 25, wherein:
the self-expanding data package further comprises one or more basic table data
20 having one or more table rows; and

the expanding further comprises combining every value in each constant list with each basic table row.

27. The method of claim 25, wherein:
one or more calculations test validity of the expanded table rows; and
only those expanded table rows that are valid are maintained in the expanded
table.

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28. The method of claim 27, wherein one or more calculations perform a
precursor conditional test that is used to test validity of the expanded table rows.

29. The method of claim 25, wherein one or more calculations provide
10 additional data used in the expanded table

30. The method of claim 25, wherein the self-expanding data package
comprises product data for use in a computer-aided design application.

15 31. The method of claim 25, wherein one or more calculations eliminate
duplicate rows or otherwise apply business rules to eliminate unwanted rows in the
resulting expanded table.

32. The method of claim 25, wherein the self-expanding data package is
20 written in extensible markup language (XML).

33. The method of claim 25, wherein one or more calculations are selected
through a graphical user interface.

34. The method of claim 25, wherein the self-expanding data package is received from across a network.

5 35. The method of claim 25, wherein one or more calculations comprise one or more filters that limit results displayed from the expanded table rows.

36. The method of claim 25, wherein an editor provides an ability to directly edit the self-expanding data package.

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37. The method of claim 25, wherein logic for expanding the data package into the expanded table is fully defined within the data package and the data.

15 38. An apparatus for generating data in a self-expanding data package in a computer system comprising:

- (a) a computer system having a memory and a data storage device coupled thereto;
- (b) one or more computer programs, performed by the computer system, for generating a self-expanding data package and storing the self-expanding data package in the memory, wherein the self-expanding data package comprising:
 - (i) one or more values in a set of one or more constant lists; and
 - (ii) one or more calculations that operate on one or more values in the set of one or more constant lists;

wherein the self-expanding data package can be expanded into an expanded table having expanded table rows, by combining every value in each constant list with any combination of values from remaining parameters and performing the one or more calculations on the one or more values.

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39. The apparatus of claim 38, wherein:
the self-expanding data package further comprises one or more basic table data having one or more table rows; and

10 the self-expanding data package is capable of being further expanded by
combining every value in each constant list with each basic table row.

40. The apparatus of claim 38, wherein one or more calculations can be applied to test validity of the expanded table rows, and only those expanded table rows that are valid are maintained in the expanded table.

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41. The apparatus of claim 40, wherein one or more calculations can be utilized to perform a precursor conditional test that can be used to test validity of the expanded table rows.

20 42. The apparatus of claim 38, wherein one or more calculations can be utilized to provide additional data used in the expanded table

43. The apparatus of claim 38, wherein the self-expanding data package

comprises product data for use in a computer-aided design application.

44. The apparatus of claim 38, wherein one or more calculations provide for
eliminating duplicate expanded table rows.

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45. The apparatus of claim 38, wherein the self-expanding data package is
written in extensible markup language (XML).

46. The apparatus of claim 38, further comprising a graphical user interface
10 displayed by the computer system for selecting the one or more calculations.

47. The apparatus of claim 38, wherein the one or more computer programs
are further configured to transmit the self-expanding data package across a network.

- 15 48. The apparatus of claim 38, wherein one or more calculations comprise
one or more filters that limit results displayed from the expanded table rows.

49. The apparatus of claim 38, wherein one or more of the computer
programs comprise an editor that provides an ability to directly edit the self-expanding
20 data package.

50. The apparatus of claim 38, wherein logic for expanding the data package
into the expanded table is fully defined within the data package and the data.

51. An apparatus for utilizing data in a self-expanding data package in a computer system comprising:
- (a) a computer system having a memory and a data storage device coupled thereto;
- (b) one or more computer programs, performed by the computer system, for receiving a self-expanding data package stored in the memory, the self-expanding data package comprising:
- (i) one or more values in a set of one or more constant lists; and
- (ii) one or more calculations that operate on one or more values in the set of one or more constant lists; and
- (c) one or more computer programs, performed by the computer system, for expanding the self-expanding data package into an expanded table having expanded table rows, by combining every value in each constant list with any combination of values from remaining parameters and performing the one or more calculations on the one or more values.
52. The apparatus of claim 51, wherein:
- the self-expanding data package further comprises basic table data having one or more table rows; and
- the computer program is further configured to expand the self-expanding data package by combining every value in each constant list with each basic table row.

53. The apparatus of claim 51, wherein one or more calculations are applied to test validity of the expanded table rows, and only those expanded table rows that are valid are maintained in the expanded table.

5 54. The apparatus of claim 53, wherein one or more calculations are utilized to perform a precursor conditional test that is used to test validity of the expanded table rows.

10 55. The apparatus of claim 51, wherein one or more calculations are utilized to provide additional data used in the expanded table

56. The apparatus of claim 51, wherein the self-expanding data package comprises product data for use in a computer-aided design application.

15 57. The apparatus of claim 51, wherein one or more calculations provide for eliminating duplicate expanded table rows.

58. The apparatus of claim 51, wherein the self-expanding data package is written in extensible markup language (XML).

20 59. The apparatus of claim 51, further comprising a graphical user interface displayed by the computer system for selecting the one or more calculations.

60. The apparatus of claim 51, wherein the self-expanding data package is received from across a network.

61. The apparatus of claim 51, wherein one or more calculations comprise 5 one or more filters that limit results displayed from the expanded table rows.

62. The apparatus of claim 51, further comprising an editor performed by the computer system that provides an ability to directly edit the self-expanding data package.

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63. The apparatus of claim 51, wherein logic for expanding the data package into the expanded table is fully defined within the data package and the data.

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64. An article of manufacture comprising a program storage medium readable by a computer and embodying one or more instructions executable by the computer to perform a method for generating data in a self-expanding data package in a computer system, the method comprising:

generating, in the self-expanding data package, one or more values in a set of one or more constant lists;

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generating, in the self-expanding data package, one or more calculations that can operate on one or more values in the set of one or more constant lists;

wherein the self-expanding data package can be expanded, into an expanded table having expanded table rows, by combining every value in each constant list with

any combination of values from remaining parameters and performing the one or more calculations on the one or more values.

65. The article of manufacture of claim 64, the method further comprising,
5 generating, in the self-expanding data package, basic table data having one or more table rows, wherein the self-expanding data package can be further expanded by combining every value in each constant list with each basic table row.

66. The article of manufacture of claim 64, wherein one or more calculations
10 can test a validity of the expanded table rows, and only those expanded table rows that are valid are maintained in the expanded table.

67. The article of manufacture of claim 66, wherein one or more calculations
can perform a precursor conditional test that is used to test validity of the expanded
15 table rows.

68. The article of manufacture of claim 64, wherein one or more calculations
can provide additional data used in the expanded table

20 69. The article of manufacture of claim 64, wherein the self-expanding data
package comprises product data for use in a computer-aided design application.

70. The article of manufacture of claim 64, wherein one or more calculations

can eliminate duplicate expanded table rows.

71. The article of manufacture of claim 64, wherein the self-expanding data package is written in extensible markup language (XML).

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72. The article of manufacture of claim 64, wherein one or more calculations are selected through a graphical user interface.

73. The article of manufacture of claim 64, wherein the method further
10 comprises transmitting the self-expanding data package across a network.

74. The article of manufacture of claim 64, wherein one or more calculations comprise one or more filters that limit results displayed from the expanded table rows.

15 75. The article of manufacture of claim 64, wherein an editor provides an ability to directly edit the self-expanding data package.

76. The article of manufacture of claim 64, wherein logic for expanding the data package into the expanded table is fully defined within the data package and the
20 data.

77. An article of manufacture comprising a program storage medium readable by a computer and embodying one or more instructions executable by the

computer to perform a method for utilizing data in a self-expanding data package in a computer system, the method comprising:

- (a) receiving a self-expanding data package comprising:
 - (i) one or more values in a set of one or more constant lists; and
 - (ii) one or more calculations that operate on one or more values in the set of one or more constant lists; and
- (b) expanding the self-expanding data package into an expanded table having expanded table rows, by combining every value in each constant list with any combination of values from remaining parameters and performing the one or more calculations on the one or more values.

78. The article of manufacture of claim 77, wherein:
the self-expanding data package further comprises basic table data having one or
more table rows; and
15 the self-expanding data package is further expanded by combining every value in
each constant list with each basic table row.

79. The article of manufacture of claim 77, wherein one or more calculations
are applied to test validity of the expanded table rows, and only those expanded table
20 rows that are valid are maintained in the expanded table.

80. The article of manufacture of claim 79, wherein one or more calculations
are utilized to perform a precursor conditional test that is used to test validity of the

expanded table rows.

81. The article of manufacture of claim 77, wherein one or more calculations are utilized to provide additional data used in the expanded table

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82. The article of manufacture of claim 77, wherein the self-expanding data package comprises product data for use in a computer-aided design application.

83. The article of manufacture of claim 77, wherein one or more calculations 10 provide for eliminating duplicate expanded table rows.

84. The article of manufacture of claim 77, wherein the self-expanding data package is written in extensible markup language (XML).

15 85. The article of manufacture of claim 77, wherein one or more calculations are selected through a graphical user interface.

86. The article of manufacture of claim 77, wherein the self-expanding data package is received from across a network.

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87. The article of manufacture of claim 77, wherein one or more calculations comprise one or more filters that limit results displayed from the expanded table rows.

88. The article of manufacture of claim 77, wherein an editor provides an ability to directly edit the self-expanding data package.

89. The article of manufacture of claim 77, wherein logic for expanding the
5 data package into the expanded table is fully defined within the data package and the data.